and two 5-mm ports are introduced to allow safe dissection and removal of the gallbladder.

Advanced therapeutic procedures require pediatric surgeons to have additional experience and training. These procedures have included Nissen fundoplication, appendectomy, splenectomy, resection of pelvic or ovarian malignant tumors, the management of high undescended testicles, and many other diagnostic procedures.

The indications for doing these procedures would include all of the factors usually considered for recommending an open procedure. Complicating factors that would contraindicate using a video-assisted technique include extensive previous surgical procedures, severe hepatomegaly or splenomegaly, or portal hypertension. The video-assisted technique may be particularly suitable for patients with compromised pulmonary function or impaired wound healing (chemotherapy, malnutrition), but these patients should still meet the standard indications for surgery that have been used to select patients for open procedures.

The complications would also be similar to those for open procedures. Unique considerations in laparoscopy would include unintentional injury to viscera from cautery and tension pneumothorax. Electrocautery in a closed abdomen may result in the transmission of energy from the intended site and requires particular care on the part of the surgeon.

At present only a small percentage of video-assisted procedures are being done in children. In the past year the types of procedures considered and the number of surgeons involved have expanded rapidly. With increasing use, we can expect these techniques to be further refined.

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Advances in the Screening and Staging of Colon and Rectal Cancers

OUR UNDERSTANDING OF the management of colon and rectal cancers has evolved dramatically in the past five years. There is an increased understanding of the natural history of these diseases as reflected in our staging and screening technologies.

The traditional Dukes' staging system is inadequate to evaluate colon and rectal cancers, and the use of tumor-node-metastasis staging has gained wide acceptance at most cancer centers. Tumor-node-metastasis staging is used because the depth of tumor penetration, the extent of lymph node involvement, and the presence of distant metastases best characterize patients' prognosis. In addition, this system is useful in more precisely comparing various surgical experiences and reports. Preoperative staging is being used only when findings would influence therapeutic alternatives. As a result, modalities that are now recognized as being helpful in preoperative staging—transrectal ultrasonography, flow cytometry, and computed tomography—are used sparingly.

Colon cancer is moving to the right. This is a result of not only an increase in the incidence of right-sided colon cancer, but also a decrease in the incidence of left-sided colon cancer. The same disease cannot be increasing and decreasing in incidence at the same time; therefore, it is now clear that right-sided colon cancer is a different disease from left-sided colon cancer. These diseases are different in their morphologic presentation, incidence, prognosis, and biologic markers. In evaluating various therapeutic options, the differences in these tumors must be recognized.

Controversy remains about the value of screening for colon and rectal cancers. Recent publications, however, strongly suggest that screening for occult blood in the stool is cost-effective and indeed prolongs the survival of patients in whom colon and rectal cancers subsequently develop. Prolonged follow-up has been necessary to show this advantage.

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Progress in Preventing Amputation in Leg Ischemia

PERIPHERAL VASCULAR SURGERY is succeeding in preventing stroke through carotid endarterectomy, extending the length of comfortable life through aortic aneurysm resection, and is becoming increasingly successful in preventing lower extremity amputation. For example, one group rejected only 11 of 564 limbs (1.9%) requiring distal revascularization. These were limbs with advanced ischemia or contractures considered nonsalvagable. This was a category that ten years ago ranged from 5% to 15% of patients with critical limb ischemia.

Increasing experience in harvesting autogenous veins has made it possible to find and use this tissue in more than 90% of cases. This remains the conduit of choice in revascularizating patients with gangrene. Thus, it has proved important to search for a suitable venous bypass in those patients (as many as 30%) from whom the long saphenous vein has been removed.

Experience teaches that using an autogenous vein for distal bypass, whether reversed or in situ, achieves long-term patency in 80% of limbs and that the percentage of amputations prevented exceeds 90%.

Even when prosthetic bypasses must be used, knitted Dacron and expanded polytetrafluoroethylene now achieve five-year patency rates of 30% to 50%. Limb salvage rates

in these cases range from 60% to 80%. These figures are acceptable if a diligent vein search proves futile.

Nearly half of patients needing distal arterial reconstruction have diabetes mellitus; some suffer from renal insufficiency. Therefore, magnetic resonance (MR) angiography has become important in the preoperative preparation of patients with limb-threatening ischemia. Interventions, whether operative or by radiologic techniques, are increasingly being based on MR angiography alone. Data currently suggest that MR imaging is an important adjunct whenever conventional angiography does not identify a suitable target vessel. Some have suggested that it has greater sensitivity than conventional angiography for detecting distal runoff arteries in limbs with severe ischemia.

Bypass techniques have also changed. Using a distal origin for the distal reconstruction has become routine. Results of such reconstructions with regard to patency and in preventing amputation are virtually identical to those of operations using the older, femoral artery inflow techniques. Bypassing to target vessels in the foot and ankle is also being done frequently. An added benefit of such reconstructions in patients with advanced ischemia is the prevention of amputation in 90% of patients.

Even persons 80 years and older benefit from limb revascularization despite their abbreviated life expectancy. Although the operative mortality nears 5% (compared with 1.5% for younger patients), the graft patency rates (66% at three years) and limb salvage rates (90% at three years) allow ambulation in 88% of patients, 85% of whom are living at home.

Lower extremity arterial reconstruction has progressed rapidly, distally, and successfully to the benefit of many patients with the severest forms of atherosclerosis.

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